

**REMARKS**

Claims 1-7, 9-11 and 13-16 are pending in this application. Claims 1 and 13 are the independent claims. Claims 8 and 12 were previously cancelled. Reconsideration and allowance of the present application are respectfully requested.

**Example Embodiments**

Example embodiments are drawn toward a toroidal transformer that may be manufactured at a lower production cost, especially via mass-production of a small transformer. To that end, example embodiments include a toroidal transformer with a tube of "flexible material" that may be bent in such a way that a first end and a second end of the bobbin may be brought toward each other. The "flexible material" is therefore a structural limitation which directly assists in ensuring that a lower cost toroidal transformer may be mass-produced.

**Rejections under 35 U.S.C. §103 – *Fukunaga* in view of *Wermine***

Claims 14-16 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent 4,603,314 ("*Fukunaga*") in view of U.S. Patent 1,763,114 ("*Wermine*"). This rejection is respectfully traversed.

With regard to independent claim 14, the Examiner asserts that *Fukunaga* discloses all of the claim limitations with the exception that *Fukunaga* does not disclose that within the final structure, the bobbin material is "flexible." The Examiner asserts that it is known in the transformer/inductor art that electrically insulating materials can be pliable and flexible. The Examiner further asserts that *Wermine* discloses such a conventional feature where a hollow bobbin is made of a flexible insulating material that supports a ribbon.

Applicant asserts that Fukunaga in view of Wermine does not teach or suggest “a hollow bobbin including at least one tube of flexible material having a substantially rectangular shaped interior hollow cross-section,” as recited in claim 14. With regard to Fukunaga, Applicant asserts that the bobbin of Fukunaga is made of a hard/non-flexible, and not a “flexible material,” as recited in claim 14. Specifically, the disclosed steps required to produce the final structure of Fukunaga (the final structure shown in FIG. 8), the disclosed steps being shown in FIGS. 3A-3E, require a hard/non-flexible housing B (the asserted “tube” of Fukunaga). Specifically, as shown in FIG. 3B, an amorphous coil A is placed in a hard/non-flexible housing B, the housing B formed of a material that is hard enough that housing B is able to maintain amorphous coil A in an O-shaped configuration (as shown in at least FIG. 3C). As shown in FIG. 3D, housing B must be made from a material that is hard enough that housing B and coil A may then be cut into two halves (cut into two C-shaped halves 101/102) while ensuring that the amorphous strips of coil A remain in a C-shaped configuration. The two C-shaped halves of the core 101/102 are then brought together (see FIG. 3E), the housing B causing the two C-shaped core halves 101/102 to retain their “C” shape while a gap spacer G is inserted at the two connection points between the core halves 101/102. Applicant therefore submits that housing B must necessarily be formed of a hard/non-flexible material able to retain a C-shaped configuration of the two separate core halves 101/102 of the Fukunaga inductor. For at least this reason, Applicant asserts that Fukunaga does not teach or suggest “a hollow bobbin including at least one tube of flexible material,” as recited in claim 14.

Furthermore, Applicant asserts the disclosed process steps (shown in FIG. 3A-3E) of forming the inductor shown in FIG. 8 of Fukunaga requires the asserted “tube”

(housing B) to be an open trough (see in particular, FIG. 3B), as opposed to a “tube,” as recited in claim 14. Applicant asserts that an open trough is not a “tube of flexible material having a substantially rectangular shaped interior hollow cross-section,” as recited in claim 14. For at least these reasons, Applicant asserts that Fukunaga does not teach or suggest “a hollow bobbin including at least one tube of flexible material having a substantially rectangular shaped interior hollow cross-section,” as recited in claim 14.

Applicant submits that a review of *Wermine* indicates that *Wermine* does not remedy the deficiencies of *Fukunaga*, as stated above. Specifically, *Wermine* does not teach or suggest a hollow bobbin “having a substantially rectangular shaped interior hollow cross section,” as recited in claim 14, nor does the Examiner rely on *Wermine* for this reason. Rather, *Wermine* only discloses an outer casing 15 of a transformer. Furthermore, Applicant asserts that *Wermine* does not teach or suggest “a hollow bobbin including at least one tube of flexible material,” as recited in claim 14. Rather, as disclosed on page 2, lines 63-68, *Wermine* only discloses an outer transformer casing 15 formed of a “somewhat pliable” or “somewhat flexible” material. Applicant asserts that an outer transformer casing 15 is not a “tube,” as recited in claim 14. Specifically, because the disclosure of *Wermine* is limited to an outer casing 15 of a transformer, *Wermine* does not teach or suggest, or even contemplate a “tube” of a hollow bobbin for a toroidal transformer, as recited in claim 14. Rather, the teachings of *Wermine* are completely irrelevant to a toroidal transformer, or a hollow bobbin for a toroidal transformer. Therefore, Applicant asserts that *Fukunaga* in view of *Wermine* does not teach or suggest “a hollow bobbin including at least one tube of flexible

material having a substantially rectangular shaped interior hollow cross-section," as recited in claim 14.

Applicant further asserts that because the teachings of Wermine are completely inapplicable to a hollow bobbin of a toroidal transformer, a person of ordinary skill in the art would not be motivated to combine Wermine with Fukunaga. Rather, the portion of Wermine the Examiner relies upon is only relevant to the teachings of an outer casing 15 of a transformer (as shown in at least FIG. 1 of Wermine). Furthermore, by the Examiner's own admission, "Wermine does teach of (sic) completely different reason for making bobbin material flexible as compared to applicant(s) reasoning."<sup>1</sup> Applicant agrees with the Examiner's statement that Wermine makes an outer casing from a "somewhat flexible" material for a very different reason from the instant invention, and therefore a person of ordinary skill in the art would not be motivated to combine Wermine with Fukunaga to teach or suggest "a hollow bobbin including at least one tube of flexible material having a substantially rectangular shaped interior hollow cross-section," as recited in claim 14. Furthermore, Applicant asserts that because Wermine does not teach or suggest a "tube" of a hollow bobbin for a toroidal transformer, the disclosure of Wermine is therefore completely inapplicable to claim 14 (and of equal importance, also completely inapplicable to the asserted "tube" of Fukunaga). Therefore, a person of ordinary skill in the art would not at all be motivated to combine Wermine with Fukunaga to teach or suggest all of the limitations of claim 14.

Applicant further asserts that Fukunaga in view of Wermine does not teach or suggest "a coil arranged around a periphery of said bobbin," as recited in claim 14.

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<sup>1</sup> See Page 3 of the July 7, 2009 Office Action.

Applicant draws the Examiner's attention to at least FIG. 8 of Fukunaga which shows the asserted "coil" 2 located only along a limited portion of the inductor (between projections 43 and 53). Applicant asserts that a "coil" 2 shown only along a part of one side of an inductor is not a coil arranged "around a periphery of said bobbin," as recited in claim 14. Specifically, a "coil" located on one side of an inductor is not a coil arranged "around a periphery," as recited in claim 14. Applicant asserts that a review of Wermine indicates that Wermine does not remedy this deficiency of Fukunaga, nor does the Examiner rely on Wermine for this reason.

Applicant further asserts that Fukunaga in view of Wermine does not teach or suggest "a core formed by a ribbon wound inside the hollow bobbin," as recited in claim 14. Applicant draws the Examiner's attention to at least FIG. 3D of Fukunaga which shows an open-trough housing B that forms two C-shaped core halves 101/102, each core half 101/102 including a plurality of laminated amorphous sheets/strips running through each core half 101/102 (as shown in FIG. 3D). Applicant therefore asserts that Fukunaga does not teach or suggest a "ribbon wound inside the hollow bobbin," as recited in claim 14. Rather, Wermine only shows amorphous sheets/strips lying together in a C-shaped configuration, and therefore the sheets/strips are not "wound" inside of a hollow bobbin. Applicant asserts that a review of Wermine indicates that Wermine does not remedy this deficiency of Fukunaga, nor does the Examiner rely on Wermine for this reason.

For at least the reasons stated above related to independent claim 14, Applicant asserts that this claim is patentable. Due at least to the dependence of claims 15-16 on claim 14, Applicant also asserts that these claims are patentable. Therefore,

Applicant respectfully requests that this art ground of rejection of these claims under 35 U.S.C. §103 be withdrawn.

**Allowable Subject Matter**

Applicant notes with appreciation the Examiner's indication that claims 1-7, 9-11 and 13 contain allowable subject matter. Applicant further believes that claims 14-16 are also allowable for at least the reasons stated above.

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**CONCLUSION**

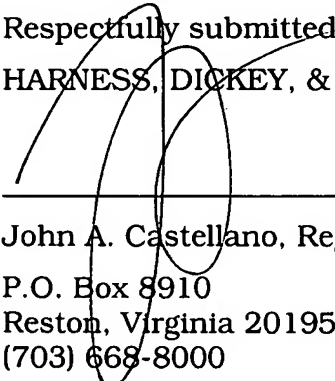
In view of the above remarks and amendments, Applicant respectfully submits that each of the rejections has been addressed and overcome, placing the present application in condition for allowance. A notice to that effect is respectfully requested. If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is invited to contact the undersigned.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned at the telephone number below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 08-0750 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,  
HARNES, DICKEY, & PIERCE, P.L.C.

By

  
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